

### **REMARKS/ARGUMENTS**

Reconsideration and withdrawal of the rejections set forth in the Non-Final Office Action dated August 27, 2009 are respectfully requested in view of the arguments presented herein.

This amendment is timely filed in view of a request for extension of time made herewith.

#### **Status of the Claims**

In the present response, no claims have been amended, cancelled, or added. Claims 1-19, 21-32, 34-44, 46-55, and 57 were previously cancelled. Therefore, claims 20, 33, 45, and 56 are pending in the application with claims 20, 33, and 45 being independent.

#### **Response to § 103 Rejection**

Claims 20, 33, 45, and 56 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Savory et al., Clinical Chemistry, 14:132-144 (1968) in view of U.S. Patent No. 3,422,738 to Mori et al., as evidenced by U.S. Patent No. 3,687,045 to Rentschler, in view of Chen et al., Genome Research, 8:549-556 (1998) in view of U.S. Published Application No. 2003/0101605 to Tacklind et al.

The Office asserts that the study of Savory investigates an improved procedure for the determination of serum ethanol by gas chromatography. Office Action at page 4 (emphasis added). The Office further asserts that Savory illustrates the chromatograms of a single sample of six different compounds obtained in two different configurations of the GC apparatus (helium flow = 75 ml/min and 45 ml/min). Id. (emphasis added)

The Office concedes that Savory shows neither actual scaling between the configurations nor the use of a photodetector to detect the presence of particles labeled with probes. Id. The Office further concedes that Savory uses a detector and not a CCD device. Id.

The Office also asserts that Mori discloses an automatic exposure flash camera. Id. (emphasis added) The Office asserts that Mori discloses equations governing

exposure time and resistances, including an equation showing a direct proportionality between exposure time and resistance. *Id.*

The Office still further concedes that Mori does not teach that resistance is related to intensity. *Id.* The Office then asserts that Rentschler discloses that exposure times are supposed to be proportional to the resistance value of the photoresistance and thereby to light intensity. *Id.* at 4-5.

The Office even still further concedes that Savory and Mori do not use a photodetector to detect the presence of particles labeled with probes. *Id.* at 5. The Office yet even still further concedes that Savory and Mori use a detector and not a CCD device. *Id.*

The Office further asserts that Chen discloses a homogeneous ligase mediated DNA diagnostic test. *Id.* (emphasis added)

The Office makes yet another concession by indicating that Savory, Mori, and Chen do not use a CCD device to detect the presence of particles labeled with probes. *Id.*

The Office then asserts that Tacklind discloses a servo-controlled automatic level and plumb tool involving position sensitive detectors sensitive to detector light. *Id.* (emphasis added)

The Office argues that it would have been obvious to modify the gas chromatography study of Savory by scaling peak size to obtain signals out of range of the detector by using the proportionality equations of Mori. *Id.* at 6.

The Office further argues that it would have been obvious to modify the detector analyses of Savory and Mori by use of the photodetector analysis of Chen. *Id.*

The Office still further argues that it would have been obvious to modify the detector analyses of Savory, Mori, and Chen by use of the CCDs of Tacklind. *Id.*

In response, Applicants respectfully submit that the present rejection is improper at least because (1) the rejection involves non-analogous art such that a skilled artisan would not have even considered combining their teachings with those of the other cited documents; and (2) even if the cited documents were all analogous art, it would not have been obvious to combine the diverse teachings of the cited documents in the manner envisioned by the Office.

More specifically, Applicants respectfully submit that at least Savory and Tacklind involve non-analogous art such that a skilled artisan would not have even considered combining their teachings with the other cited documents. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007). Thus, a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole. M.P.E.P. § 2141.01(a). A prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned. *In re Oetiker*, 977 F.2d 1443 (Fed. Cir. 1992).

In the present case, as noted by the Office, Savory relates to an improved procedure for the determination of serum ethanol by gas chromatography. In contrast, the present invention relates to methods for extending the dynamic range of photodetectors. Thus, Savory involves a different field of endeavor and is not reasonably pertinent to the particular problem with which Applicants were concerned. A skilled artisan would therefore have not even considered combining the teachings of Savory with the other cited documents.

Further, Applicants respectfully submit that Tacklind involves non-analogous art. Tacklind relates to alignment tools that generate optical alignment beams. Paragraph [0001]. In contrast, as noted above, the present invention relates to methods for extending the dynamic range of photodetectors. Thus, Tacklind involves a different field of endeavor and is not reasonably pertinent to the particular problem with which Applicants were concerned. A skilled artisan would therefore have not even considered combining the teachings of Tacklind with the other cited documents.

Even if all the cited documents were analogous art, Applicants respectfully submit that the Office has failed to provide sufficient reasoning for combining the teachings of the cited documents. While the *KSR* Court rejected a rigid application of the teaching, suggestion, or motivation ("TSM") test in an obviousness inquiry, the Court

acknowledged the importance of identifying “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” in an obviousness determination. *KSR* at 1741. As long as the TSM test is not applied as a “rigid and mandatory” formula, that test can provide “helpful insight” to an obviousness inquiry. *Id.*

Even if all the elements of the claims were known in the art, it does not follow that it would have been obvious to combine them. *KSR* provides that “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.” *Id.* at 1742.

In the present case, Applicants respectfully submit that the Office has failed to provide sufficient reasoning to combine the teachings of the cited documents. The Office has failed to show that there was a recognized design need or market pressure to solve a problem. The cited documents fail to recognize a problem solved by the present invention. For instance, the cited documents fail to recognize that there was a need to extend the dynamic range of photodetectors.

Looking at the cited documents in more detail, Savory describes the analysis of serum ethanol levels by gas chromatography. Savory describes the use of a hydrogen flame ionization detection system. Page 133, lines 22-24.

The Office relies on FIG. 5 of Savory to assert that while the y-axis or dynamic ranges of the chromatograms go to 8 cm and 10 cm, respectively for each of the two configurations, some of the peaks in the first configuration would be out of the dynamic range of the detector in the second configuration. In contrast with the assertions of the Office, Applicants respectfully submit that the Office has failed to establish that some of the peaks in the first configuration of Savory would be out of the dynamic range of the detector in the second configuration. To the contrary, Applicants respectfully submit that FIG. 5 of Savory shows complete peaks such that all of the peaks are within the dynamic range of the detector for each of the flow rates. Still further, the mere fact that the y-axes of FIG. 5 are shown to “go to 8 cm and 10 cm” does not establish that the dynamic range is limited to 8 cm or 10 cm. The use of 8 cm and 10 cm may have been chosen to make FIG. 5 aesthetically pleasing for publication purposes.

Savory therefore involves analysis of serum ethanol levels by gas chromatography by using a hydrogen ionization detector. Also, in contrast with the assertions of the Office, Savory fails to disclose addressing dynamic range limitations, let alone addressing dynamic range limitations of a photodetector.

Further, Applicants respectfully submit that it would not have been obvious to combine the hydrogen flame ionization detection system teachings of Savory with the automatic flash camera teachings of Mori. In contrast with the suggestions of the Office, Mori does not teach combining a first measurement with a second measurement to determine a scaled representation. Instead, Mori involves an automatic exposure camera for use with photoflash illumination which provides exposure compensation for ambient light. Col. 1, lines 64-67. Mori involves controlling shutter speed in accordance with ambient light. Col. 2, lines 53-57. Thus, Mori does not teach combining a first measurement with a second measurement to determine a scaled representation. And it would not have been obvious to combine the teachings of Savory and Mori. If this combination of teachings is maintained for any reason, Applicants respectfully request further clarification.<sup>1</sup>

Still further, Applicants respectfully submit that it would not have been obvious to combine the ethanol detection teachings of Savory with the DNA detection teachings of Chen. A skilled artisan would have appreciated that ethanol and DNA are different. Thus, it would not have been obvious to combine the ethanol detection teachings of Savory with the DNA detection teachings of Chen.

It also would not have been obvious to combine the hydrogen flame ionization detection system teachings of Savory with the fluorescence energy resonance energy transfer (FRET) detection system teachings of Chen. Applicants respectfully submit that skilled artisan would have appreciated that a hydrogen flame ionization detector is markedly different from a photodetector. A FRET detection system detects fluorescent emission and yields an output signal based upon the abundance of the fluorescence. A hydrogen flame ionization detector involves the detection of ions. Components are ionized by passing the components through a hydrogen flame. This ionization process creates

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<sup>1</sup> Applicants respectfully submit that Rentschler suffers from the same deficiencies of Mori. For instance, Rentschler involves controlling exposure time. Col. 6, lines 45-52.

charged components. Ions are attracted to a collector plate. As the ions contact the collector plate, the ions induce a current, which is measured by a voltage or current detector, usually an ammeter. It would neither have been obvious, nor predictable, to combine the two technologies or to replace one of these types of detectors with the other; they detect different things in different ways. It is only with impermissible hindsight, that someone skilled in the art would combine such technologies. For at least these reasons, the combination of Savory and Chen fails to teach or suggest, and would not have rendered obvious, the present invention.

If this combination of teachings is maintained for any reason, Applicants respectfully request further explanation as to how and why the ethanol / gas chromatography teachings of Savory would have been combined with the DNA / FRET teachings of Chen.

In addition, Applicants respectfully submit that it would not have been obvious to combine the teachings of Tacklind with the teachings of the other cited documents. Tacklind describes a servo-controlled automatic level and plumb tool. As noted by the Office, Tacklind involves position sensitive detectors. Tacklind does not teach detecting the intensity of light. It therefore would not have been obvious to combine the teachings of Tacklind with the other cited documents.

Even if the teachings of the cited documents were combined in the manner suggested by the Office, the present invention would not result. The combined teachings of the cited documents fail to disclose a photodetector configured in a first configuration comprising a first dynamic range having a first upper limit and a first lower limit; and configuring the photodetector to a second configuration comprising a second dynamic range.

The Office asserts that FIG. 5 of Savory shows a GC apparatus in two configurations. Fig. 5 represents the results of interference studies described in Savory at page 139. The two graphs show that the resolution of compounds A-F can be changed by altering the flow rate of carrier gas. As would be expected by the lower flow rate (45 ml/min), the peak height of compounds A-F decreased and the resolution of each individual peak increased, as compared to the results obtained at the higher flow rate (75 ml/min). Savory describes the use of a hydrogen flame ionization detection system. Page

133, lines 22-24. At no point does Savory describe adjusting the settings of the hydrogen flame ionization detection system. The carrier helium stream is reduced, but the hydrogen flame ionization detection system remains in the same configuration.

As shown in FIG. 2 of Savory, the helium stream is part of a vapor injection system. Page 136. As will be appreciated, the vapor injection system is not a detector. Furthermore, there is nothing displayed in the upper graph of FIG. 5, that cannot be seen in the lower graph of FIG. 5. As is clearly shown, each of peaks A-F is within the dynamic range of the hydrogen flame ionization detection system. Moreover, there is nothing disclosed or suggested in Savory about adjusting a detector of any kind into two separate configurations, let alone a first configuration where a first output signal falls outside of the dynamic range of a detector, and a second configuration where a first output signal falls within the dynamic range of a detector. Savory is not concerned with extending the dynamic range of a detector.

Thus, Savory and the other cited documents fail to disclose a detector, let alone a photodetector, configured in a first configuration comprising a first dynamic range having a first upper limit and a first lower limit; and configuring the detector, let alone a photodetector, to a second configuration comprising a second dynamic range.

Further, in contrast with the assertions of the Office, the combined teachings of the cited documents fail to teach combining a first measurement with a second measurement to determine a scaled representation. As noted above, the Office has failed to establish that some of the peaks in the first configuration of Savory would be out of the dynamic range of the detector in the second configuration. And Mori involves controlling shutter speed in accordance with ambient light. Thus, the combined teachings of the cited documents fail to teach combining a first measurement with a second measurement to determine a scaled representation.

In view of the above, Applicants respectfully request withdrawal of this ground of rejection.

## **CONCLUSION**

In view of the foregoing, Applicants submit that all outstanding issues in this case have been resolved, and that all pending claims in their current form are allowable. A

Notice of Allowance is therefore respectfully requested. Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-3994.

If a telephone conference would expedite the prosecution of the subject application, the Examiner is requested to call the undersigned at (650) 554-3414.

Respectfully submitted,

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